REMARKS / ARGUMENTS

Remarks Regarding Claims Analysis

Applicant takes note of the Examiner's comments regarding claims analysis.

Remarks Regarding Claims Rejected Under 35 USC §102(e) and Under 35 USC §103(a)

The Examiner has rejected claims 1 – 4, 6 – 8, 10 – 14 and 16 – 21 under 35 U.S.C. §102(e) as anticipated by or in the alternative, under 35 U.S.C. §103(a) as obvious over Hoffman, et al (U.S. Patent 6,224,793, "the '793 patent"). Applicant respectfully traverses this rejection.

The Examiner has rejected claims 1 – 21 under 35 U.S.C. §102(e) as anticipated by Daage, et al (U.S. Patent 6,624,204, "the '204 patent"). Applicant respectfully traverses this rejection.

Summary of the Present Invention

The present development claims a catalyst pastille comprising an active catalyst that is oxygen- or moisture-sensitive, and that is preferably in powdered form, enrobed in a hydrocarbon coating and made by a process that comprises blending, transferring, feeding and pastillation or flaking steps. An essentially constant temperature, from about 0°F (at the congealing point) to about 50°F above the congealing point of the coating material, is maintained during the blending, transferring and feeding steps. The temperature is gradually decreased as the pastilles or flakes proceed through the pastillation or flaking step so that the discharge temperature from the pastillator or flaker is from about 2°F to about 150°F lower than the congealing point of the coating material. The pastilles vary in shape and have a diameter of from about 2 mm to about 100 mm and a thickness of 1 mm to 10 mm.

The independent claims 1, 7 and 20 have been amended to more particularly point out that the catalyst pastille prepared by the process of the present invention comprises an active powdered catalyst coated with a protective hydrocarbon coating material such that an essentially oxygen- and/or moisture barrier is created for the powdered catalyst, and wherein the powdered catalyst defines a density and the hydrocarbon material defines a density and the density of the powdered catalyst is greater than the density of the hydrocarbon material. The basis for this amendment is found in the Specification at page 5, lines 15 – 16, and at page 6, lines 14 – 17. It is applicant's belief that these amendments do not add new matter to the claims.

The dependent claims 2 – 6, 8 – 14, 16 – 19 and 21 have been amended to more particularly differentiate between the catalyst pastille (comprising the powdered catalyst and the hydrocarbon coating) and the powdered catalyst. The bases for these amendments are found in the claims as originally filed. It is applicant's belief that these amendments do not add new matter to the claims.

Claim 15 has been cancelled from the application.

U.S. Patent 6,224,793, Hoffman, et al.

Applicant notes that U.S. Patent 6,224,793 patent relates to microencapsulation technology rather than pastille preparation technology. As such, although there are some similarities, the scales differ significantly. Where this distinction between the two technologies is most critical is with respect to maintaining the integrity of the catalyst (active agent) particle. In the microencapsulation processes, the active agent may be encapsulated from the atomic level (*e.g.* out of solution), whereas for pastille preparation, the integrity of the catalyst particle (the active agent, not the pastille) must be maintained in order for the catalyst to later be functional in a reactor.

U.S. Patent 6,224,793 teaches and claims a particle comprising an active agent encapsulated in a crystallizable or thermoplastic polymer. According to the '793 patent, the particle has a size of 3,000 microns or less, more preferably about 300 microns or less, even more preferably about 150 microns or less, and most preferably about 70 microns or less. (Column 11, lines 30 – 36.) With respect to the active agent, the '793 patent teaches that "[p]referably, the active agent is soluble in the encapsulating material. The active agent may be either a liquid or solid at room temperature but it is preferably a liquid at processing temperatures." (Column 4, lines 5 – 8.) The Examples teach active agents that are soluble in the encapsulating material, and the claims are limited to active agents that are soluble in the encapsulating material. As is known in the art, the use of organometallic agents – a preferred form of active agent for the '793 patent – greatly enhances the solubility of the active agent in polymeric materials as compared to using metals that lack organic ligands. The polymer encapsulating material may comprise polyethylene or polyethylene glycol, among others. Although not taught in the '793 patent, applicant will accept – for the purposes of this Amendment only – the Examiner's contention that the catalyst would inherently be spherical, hemispherical, ellipsoidal, oval, domed or flaked.

As amended, the claims of the present application are distinguishable from the encapsulated active agent taught in the '793 patent. The claims now specify that the active agent of the present invention is in the form of a powdered catalyst throughout processing and into the final enrobed product as compared to the active agent of the '793 patent which is preferably a liquid at processing temperatures. The use of a low-shear jacketed blender for processing reduces the risk of grinding or milling the powdered catalyst.

The amended claims of the present application also now require that the powder catalyst has a density that is greater than the density of the enrobing hydrocarbon. The '793 patent does not teach or suggest the use of active agents with densities greater than the density of the encapsulating polymer.

The present development is also distinguishable from the encapsulated active agent of the '793 patent with respect to pastille (encapsulated particle) size. In the present development, the pastilles have a minimum dimension of about 1,000 microns (claim 17) and the active agent has an average particle size of from about 1 micron to about 225 microns. In contrast, the pastilles or encapsulated particles of the '793 patent may reach a size of 3,000 microns, but the preferred size range including all encapsulated particles described in the Examples, are well below that maximum size and rather fall within the particle size defined for the powdered catalyst (active agent) in the present application.

Thus, independent claims 1, 7 and 20 and their dependent claims 2 – 6, 8 – 14, 16 – 19 and 21, are not anticipated, or in the alternative obvious, in view of U.S. Patent 6,224,793.

U.S. Patent 6,624,204, Daage, et al.

U.S. Patent 6,624,204 teaches and claims a method for renewing the activity of dispersed active metal catalysts during operation of a reactor. Example 2 contained therein and cited by the Examiner, teaches a classic prior art method for wax-coating an oxidized catalyst: oxidized catalyst is slurried with a hot wax, then allowed to settle to the bottom of the mix tank, then the wax-coated catalyst is removed as a large lump. The wax-coated catalyst is in the form of a solid wax cylinder (see column 10, line 2) that has a high concentration of catalyst that has settled toward the bottom of the reactor (see column 10, lines 1 – 7, which concluded with a wax-coated catalyst that had 20 wt% wax and, hence, 80 wt% catalyst) and essentially no catalyst in the upper end of the reactor and wax cylinder.

There is no teaching or suggestion in the '204 patent that the wax-enrobed catalyst is formed into pastilles or any shape that is spherical, hemispherical, ellipsoidal, oval, domed or flaked. Relying on the shape (solid cylinder) taught in Example 2 and basic geometry, it is not inherent that the enrobed catalyst would be spherical, hemispherical, ellipsoidal, oval, domed or flaked as these are not normal segments or cross-sections of a cylinder.

Because the catalyst settles to the bottom of the reactor, Applicant agrees with the Examiner that the density of the catalyst in the '204 patent is greater than the density of the wax. However, Applicant fails to see the relationship between density and which material would be coating which. The catalyst in the '204 application is a solid metal whereas the wax is melted allowing the wax to flow over and around the solid metal catalyst. As is known in the art, if the metal was provided in a form that had a lower density than the wax, such as flakes, the wax would still coat the metal, although it might require more mechanical processing to force the metal into the wax rather than allowing it to float on the top of the

wax. In the present application, part of the novelty arises from having a catalyst that has a greater density than the hydrocarbon coating material, but through judicial processing methods the catalyst does not settle but rather is uniformly dispersed throughout hydrocarbon coating.

With respect to the wax-coated oxidized catalyst taught in the '204 patent, applicant does not contend that wax coating of active catalysts was unknown prior to the present application. Rather, Applicant contends that in the teachings of the '204 patent as in other prior art wax-coated catalyst examples, the wax-coated catalyst produced is not in the form of pastilles that have the catalyst *uniformly dispersed throughout a coating material*, as in the present application. Instead, the '204 patent and other prior art patents teach slurrying a hot wax with a catalyst and then letting the catalyst settle out so there is a relatively high concentration of catalyst in part of the wax and a relatively low concentration in an adjacent portion of the wax.

Because the '204 patent does not teach or suggest a wax-enrobed catalyst wherein the catalyst is uniformly dispersed throughout the wax, independent claims 1, 7 and 20 and their dependent claims 2 – 6, 8 – 14, 16 – 19 and 21, are not anticipated in view of U.S. Patent 6,624,204.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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With respect to the wax-coated oxidized catalyst taught in the '204 patent, applicant does not contend that wax coating of active catalysts was unknown prior to the present application. Rather, Applicant contends that in the teachings of the '204 patent as in other prior art wax-coated catalyst examples, the wax-coated catalyst produced is not in the form of pastilles that have the catalyst *uniformly dispersed throughout a coating material*, as in the present application. Instead, the '204 patent and other prior art patents teach slurrying a hot wax with a catalyst and then letting the catalyst settle out so there is a relatively high concentration of catalyst in part of the wax and a relatively low concentration in an adjacent portion of the wax.

Because the '204 patent does not teach or suggest a wax-enrobed catalyst wherein the catalyst is uniformly dispersed throughout the wax, independent claims 1, 7 and 20 and their dependent claims 2 – 6, 8 – 14, 16 – 19 and 21, are not anticipated in view of U.S. Patent 6,624,204.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

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